

# Indiana State Police Laboratory Division

#### 2014 ANNUAL REPORT

#### MISSION:

TO PROVIDE A
MAXIMUM OF
CRIME
LABORATORY
SERVICE FOR
ALL BRANCHES
OF THE
CRIMINAL
JUSTICE SYSTEM
WITHIN THE
RESOURCES
PROVIDED."

#### GOAL:

TO DEVELOP
EVIDENCE
COLLECTION
AND
ANALYTICAL
RESOURCES IN
A BALANCED
FASHION.

The mission of the Laboratory Division is "to provide a maximum of crime laboratory services for all branches of the criminal justice system..." The primary service it provides is the delivery of timely and reliable information. Is the white powder cocaine? Is this red stain human blood? Was that bullet fired from this gun? This was the type of information the Laboratory developed and issued reports for over 18,000 cases completed in 2014.

The Laboratory Division is organized into five sections: Biology, Chemistry, Comparative Science, Crime Scene and Field Support, and Management and Administration. The Biology Section consists of Serology, DNA, and CODIS (Combined DNA Index System). The Chemistry Section consists of the Drug Unit and Microanalysis Unit. The Comparative Science Section consists of the Firearms Unit (including Integrated Ballistics Identification System or IBIS), Latent Print Unit (including Automated Fingerprint Identification System or AFIS), Photography Unit, and Document Unit. Field Support consists of the Polygraph Examiners, Crime Scene Investigators and District Evidence Clerks. Management consists of administrative and support personnel, Laboratory Managers, Regional Laboratory Evidence Clerks and IT/LIMS Unit.

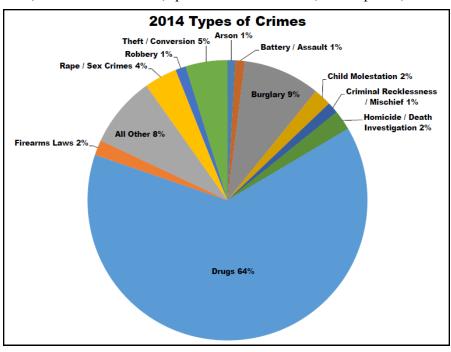
The Laboratory Division accepts evidence associated with active criminal investigations for analysis at four laboratory locations - Indianapolis, Lowell, Fort Wayne, and Evansville. The four laboratories have been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) since 1991 and accredited to ISO 17025 standards since 2012. In 2014, the Indiana State Police Polygraph Unit achieved accreditation from Polygraph Law Enforcement Accreditation (PLEA).

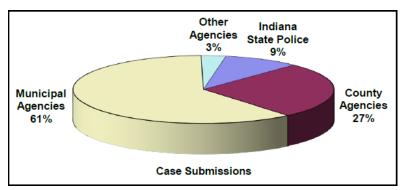
In the fall of 2014, the Laboratory Division hosted a training seminar on the Introduction to Forensic Analysis at each of the four regional laboratories. Local Police Departments, Sheriff's Offices, Prosecutors as well as State Police employees were invited to attend these informational workshops. This training provided the attendees information regarding submission requirements as well as analytical capabilities, improving both the quality and quantity of examinations.

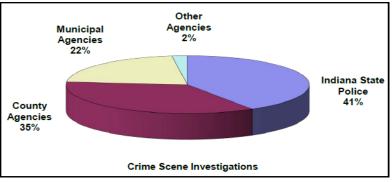
### Types of Crimes and Requesting Agencies

The four laboratories provide forensic services at no charge to federal, state, county and local agencies throughout the State of Indiana. These services include tests for firearms and tool mark comparisons; identification of controlled substances; trace examinations; questioned documents; latent prints; foren-

sic biology/DNA and maintenance of the state's DNA database. The Division also provides polygraph examinations and crime scene investigations upon request. The Laboratory Division received 17,714 new cases for analysis in 2014. Crime Scene Investigators responded to and worked 922 investigations involving 1,243 different crime scenes. The Polygraph Unit conducted 597 polygraph tests in 2014. The graph to the right has the types of crimes for the laboratory cases analyzed in 2014.



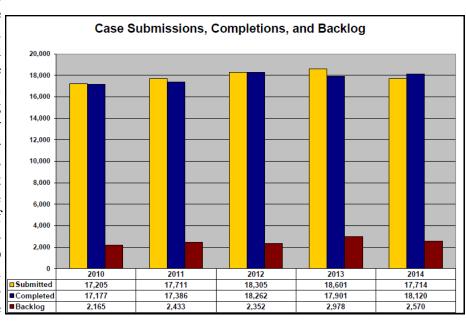


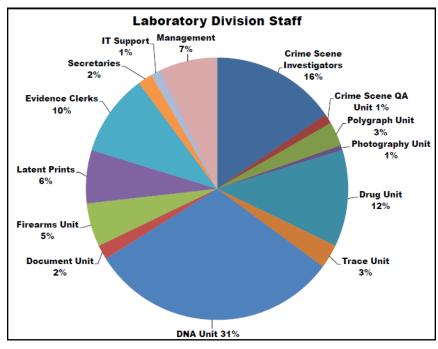


Analytical services (DNA, Drugs, Trace. Firearms. Latent Prints. and Documents) and Support Services (Crime Scene Investigation, Polygraph, and Photography) are provided to contributors from state, county, municipal, and federal agencies. As shown in the "Case Submissions" chart, the majority of cases for analysis are submitted municipal agencies. from The "Crime Scene Investigations" chart shows that over half of the crime scene investigations were completed for local and county agencies.

## Case Submissions, Completions & Backlog

As shown in the "Case Submissions, Completions, and Backlog" graph to the right, the Laboratory Division received 17.714 cases and completed 18,120 cases in 2014. The Laboratory Division has a goal of having 90% of its backlog being analyzed in 45 days or less from the date of submission. The backlog is defined as any case submitted that has not been completed. The average turnaround time at the end of 2014 for completing a case was 58 days from submission, up from 47 days in 2013 due in part to issues involving the condition of the facilities at the Backlog Fort Wayne and Evansville laboratories.





At the end of 2014, the Laboratory Division employed a staff of 168 individuals providing analytical and support services. The chart to the left details the apportionment of the Approximately 90% of the Laboratory Division personnel are directly involved in collecting. maintaining, and/or analyzing evidence. Approximately 66% of the Forensic Scientists are certified by a forensic organization. The last two pages of this report provides the Division's organizational structure and contact information. The Division's personnel are active in the forensic community with multiple individuals holding office or working on committees of numerous forensic organizations.

## Regional Laboratories

All four laboratories provide analysis in DNA, Drugs, Firearms, and Latent Prints. Microanalysis (Trace) examinations and Question Documents analysis are only available at the Indianapolis Regional Laboratory.

The 2014 case submissions at the four regional laboratories are shown in the table below.

	Evansville	Fort Wayne	Indianapolis	Lowell	Totals
DNA	175	227	3,020	424	3,846
Documents	0	0	41	0	41
Drug	1,211	1,364	5,389	2,258	10,222
Firearms	323	789	726	54	1,892
Fingerprint	288	386	599	198	1,471
Microanalysis	0	0	242	0	242
Totals	1,997	2,766	10,017	2,934	17,714

The 2014 case completions at the four regional laboratories are shown in the table below.

	Evansville	Fort Wayne	Indianapolis	Lowell	Totals
DNA	179	228	2,927	435	3,769
Documents	0	0	55	0	55
Drug	1,203	1,521	5,610	2,408	10,742
Firearms	327	740	580	67	1,714
Fingerprint	363	443	589	195	1,590
Microanalysis	0	0	250	0	250
Totals	2,072	2,932	10,011	3,105	18,120

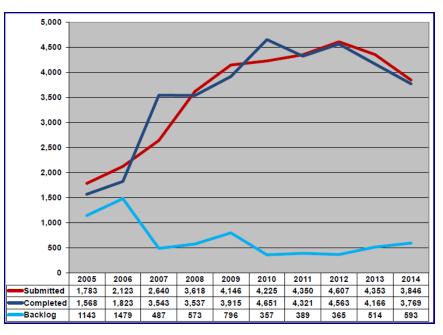
At the end of 2014 the case backlogs were as shown in the table below.

	Evansville	Fort Wayne	Indianapolis	Lowell	Totals
DNA	18	43	501	31	593
Documents	0	0	30	0	30
Drug	94	156	657	149	1,056
Firearms	20	162	200	7	389
Fingerprint	22	147	227	68	464
Microanalysis	0	0	38	0	38
Totals	154	508	1,653	255	2,570

## **Biology Section**

The Biology Section (54 staff) is organized into four casework units plus the Combined DNA Index System (CODIS) Unit. This Section conducts analysis of biological samples including identification of body fluids (serology), nuclear and YSTR DNA analysis, forensic relationship testing, blood stain pattern analysis, DNA analysis of convicted offender samples and searching the offender database for matching profiles.

The Section completed 3,769 cases in 2014 and 3,846 cases were submitted. In addition, 238 CODIS Hits generated after July 1 were not included in these submissions due to a change in reporting protocol.



As a result of the above efforts a total of 504 separate criminal investigations were aided through CODIS during 2014, including the following violent offenses: 13 homicides, 15 robberies and 69 sex crimes. Types of hits included 9 National Forensic Hits, 141 National Offender Hits, 17 State Forensic Hits, and 354 State Offender Hits. This brings the grand total to 4,582 investigations aided since Indiana began the CODIS program.

In 2014 the Biology Section adopted new mixture interpretation guidelines and revised statistics methods that allowed analysts to draw conclusions on more complicated mixed DNA profiles that previously would have been deemed inconclusive. This allowed some of these profiles to be searched in CODIS. The CODIS Unit validated and implemented software that automated technical review of qualifying offender samples. A new online interface with the Indiana state court system allows collecting agencies to determine if an individual was previously collected and entered into the state DNA database, dramatically decreasing the number of duplicate collections.

The Section successfully analyzed biological materials from many types of evidence. In one case a DNA profile developed from a torso found in an abandoned car helped identify the body. In another case, DNA analysis of a hair found on the homicide victim in a cold case from 1992 resulted in a CODIS hit that led to a conviction for voluntary manslaughter. This person was never a suspect in the crime and had since moved out of state. In a third case, blood on clothing and in a car resulted in the conviction of two men for the murder of a 19 year old woman.

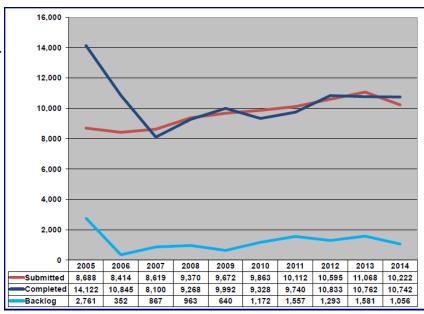
Photo: Analyst performing a biological examination.

## **Drug Unit**

The Drug Unit (20 staff) provides identification of controlled substances, non-controlled drugs of abuse, clandestine laboratory samples, and diluent materials found in drug preparations.

During 2014 the Unit analyzed 10,742 cases and received 10,222 cases. The total backlog in the Drug Unit decreased by 33% in 2014.

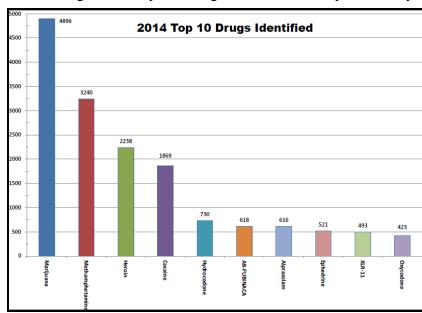
The Unit is active in the forensic community participating in the American Chemical Society (ACS), American Academy of Forensic Sciences (AAFS), Southern Association of Forensic Scientists (SAFS), Mid-



western Association of Forensic Scientists (MAFS), American Board of Criminalistics (ABC) and Clandestine Laboratory Investigating Chemists Association (CLIC).

New synthetic drugs continue to emerge and challenge the Drug Unit. In 2014, the Unit identified 23 new synthetic drugs. The Indiana Pharmacy Board emergency scheduled 8 synthetic drugs in 2014, and re-scheduled 18 of those drugs that had not been adopted by the Indiana Legislature and were on the verge of expiration.

On July 1, 2014, new statutory weight thresholds for possession and dealing of controlled substances became effective. These weight thresholds have the potential to dramatically increase the number of samples the Unit is analyzing per case, thereby increasing case turnaround time. The majority of the cases being worked by the Drug Unit were seized prior to July 1, 2014, and the full effect of this legis-



lation is not entirely apparent at this time. As the submitted cases become more current, it is anticipated that case completion numbers will drop due to the increase in the number of items analyzed per case. Because of this fact, it is likely the case turnaround times in the Drug Unit will increase in 2015.

The photo to the right is of an edible marijuana pipe analyzed by the Drug Unit this year.

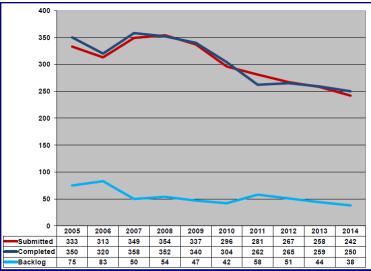


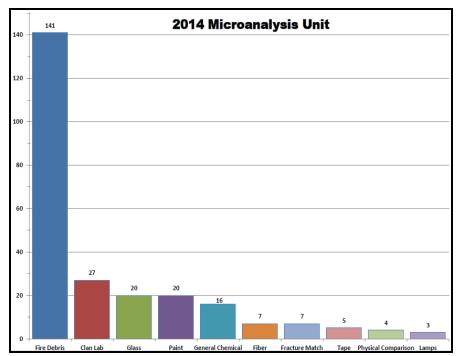
## Microanalysis Unit

The Microanalysis Unit (5 staff) provides identification, analysis, and comparison of fibers, paints, tapes, glass, fire debris, plastics, automotive lamps, clandestine laboratory reagents, and unknown materials.

The Unit completed 250 cases during 2014 with a backlog of 38 cases at the end of the year, which is the lowest backlog for this Unit since 2002

The Unit is active in the forensic community participating in the American Society of Trace Evidence Examiners (ASTEE), Midwestern Association of Forensic Scientists (MAFS), and American Board of Criminalistics (ABC).





The Microanalysis Unit is asked to compare many different types of samples. They use many different types of microscopes as well as analytical instrumentation to conduct their comparisons in an effort to provide associative evidence. The majority of cases worked by the Unit are fire debris cases.

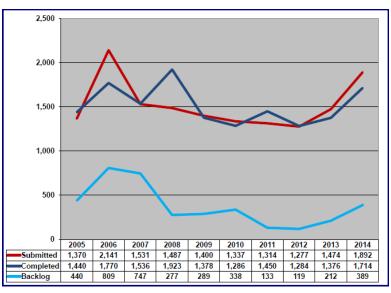
Associative evidence, like plastic, can be valuable evidence in the investigation and prosecution of a case. The physical properties and chemistry of the questioned plastic is compared to the plastic standard



This year the Unit worked a case comparing pink plastic on a cartridge casing to a cobra .380 caliber pistol (photo to the left).

#### Firearms Unit

The Firearms Unit (9 staff) provides comparison and identification of fired bullets and cartridge cases. The Unit also provides examination and comparison of toolmark evidence, Integrated Ballistics Identification System (IBIS) database entry/inquiry for unsolved firearms related cases, muzzle to target distant determination, serial number restoration, function testing of firearms, and characterization of recovered ammunition components. Members of the Unit also participate on the Superintendent's Advisory Committee on Firearms/ Ammunition Selection by evaluating new ammunition and firearms for future procurement by the Indiana State Police De-



partment. This year these committee members tested and evaluated the Sig Sauer .45 caliber pistol which was distributed to ISP sworn personnel in 2014.

The Unit worked 1,714 cases in 2014 while receiving 1,892 cases. This places the Firearms backlog at 389 for year end 2014. The increase submissions and having an examiner in training contributed to the increased Firearms backlog.

The Unit is active in the forensic firearms community with members serving as elected board members or on committees for the Association of Firearm or Toolmark Examiners (AFTE) including Past President and Treasurer, and the NIBIN Users Conference. In addition, one member was appointed this year

to the Forensic Science Standards Board (FSSB). The FSSB oversees the Organization of Scientific Area Committees (OSAC). The OSAC was established to create a sustainable organizational infrastructure that produces consensus documentary standards and guidelines to improve quality and consistency of work in the forensic science community.

Members of the Unit attended and co-hosted a Shooting Reconstruction School at the State Police Putnamville Post (photo right).

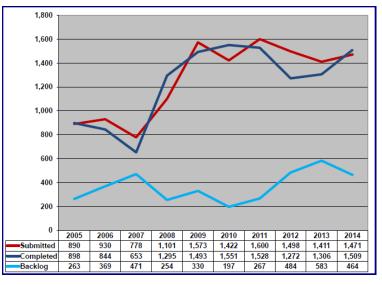
right).					
Laboratory	Fort Wayne	Indianapolis			
2014 Entries	630	669			
2014 Hits	101	35			
2014 Percentage	16%	<b>5.2</b> %			
2013 Percentage	<0.01%	<0.01%			



In 2014, the Unit experienced a significant increase in the "hit" totals (chart to the left) with the IBIS. This increase is due in part to the Unit having received two new imaging systems, which provides sharper images and better correlation.

### **Latent Print Unit**

The Latent Print Unit (11 staff) examines and compares unknown to known dermal friction ridge detail. Processing techniques include physical, chemical and fluorescent development of latent print evidence. When a case is submitted without a suspect, the unknown fingerprints are entered into the Automated Fingerprint Identification System (AFIS, state system) and the Federal Bureau of Investigation's Next Generation Identification (NGI) databases. Potential candidates are generated by the system, but the comparison, identification and verification processes must be made by a forensic scientist. The Latent Print Unit can access all friction ridge archive files from AFIS/NGI for com-



parison purposes. This not only streamlines the process of obtaining exemplars, but it also allows the examiners to acquire the exact exemplar they may need for comparison. The Unit also conducts examinations of footwear and tire impressions. The Unit has access to a Shoeprint Image Capture and Retrieval database known as (SICAR). This system stores shoeprint sole patterns and tire tread patterns for reference. Footwear and tire impressions recovered from crime scenes can be searched in SICAR with the potential of locating a particular manufacturer of a shoe or tire which can provide information to the investigator. The Unit also assisted with 390 CODIS hit confirmations via print identifications.

The Unit worked 1,509 cases during 2014. The Unit had 306 AFIS hits, the most hits the Unit has had in a single year. Since 2002, a total of 1,099 AFIS identifications have been made by members of this Unit.

The Latent Print Unit is active in the forensic community participating in the International Association for Identification (IAI) and the Indiana Division of IAI including President, Secretary/Treasurer, Board Member and Newsletter Editor.

The Latent Print Unit analyzed evidence in a case of a young woman bound with duct tape and murdered. The victim was beaten, strangled, and placed in a body of water. The Unit worked closely with the DNA Unit and latent impressions were developed on pieces of the duct tape and identified to each of the suspects. The suspects pled guilty and each received an 81 year sentence.

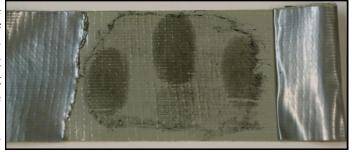
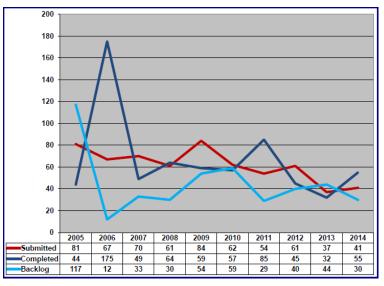


Photo: Latent prints developed by the Unit on duct tape.

### <u> Document Unit</u>

The Document Unit (3 staff) provides a range of examinations in order to answer questions about the authorship, authenticity, and background of documents. Document examinations may include: the comparison of handwriting, hand printing, and signatures to known writing in order to identify or eliminate a subject as the writer; the development and decipherment of indented writing impressions; physical match examinations of torn, cut, or shredded documents; the classification and comparison of inks and writing instrument; the examination of printing processes to determine source or authenticity; detection of alterations, additions, de-

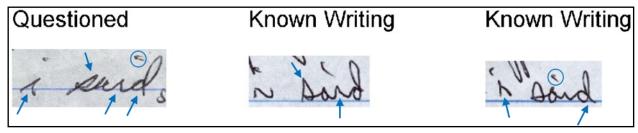


letions, or substitutions; decipherments of altered, erased, obliterated, charred, or water-soaked documents; and the determination of the sequence of events in the creation of a document.

The Unit completed 55 cases in 2014 and received 41 cases. Compared to 2013, the amount of cases completed increased by 72% and backlog decreased by 43%, all while receiving more case submissions.

The Unit is active in the forensic community by participating in the American Society of Questioned Document Examiners (ASQDE) and Midwestern Association of Forensic Scientists (MAFS) including the Document Section Chair.

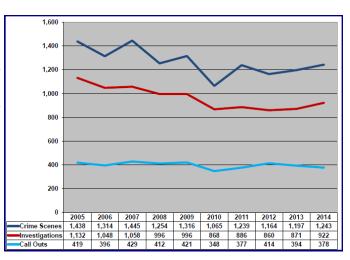
The Unit aided in a variety of investigations in 2014. In one case, a questioned note was left at the residence of an assault victim. During the investigation, a subject provided an unnatural writing sample containing a change in slant. Despite the slant change and with the submission of additional non-request known writing, it was concluded that it was probable the subject wrote the note. The subject was sentenced to 100 years after being found guilty of burglary and criminal deviate conduct, with habitual offender status.



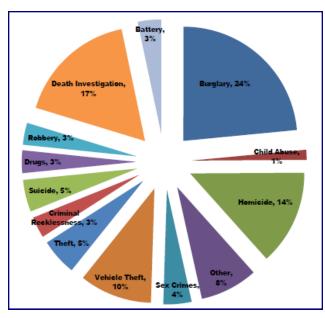
In another case, multiple checks from one company were in question totaling over \$125,000. As a result of the document examination, it was determined that the signatures on the checks were non-original and shared a common source. Working with the investigator, a digital file of the signature used to produce the checks was recovered from a computer from within the company. The presence of non-original signatures on the company checks was outside of their normal course of business.

## Crime Scene Investigation & Evidence

Crime Scene Investigators (25 staff) and Evidence Clerks (17 staff) provide technical crime scene processing, evidence storage and security, and court testimony as required. The Crime Scene Investigators' (CSIs) duties include identifying and collecting potential evidence, reconstructing the events of the crime, and physically linking potential suspects to the crime. Evidence Clerks are responsible for logging and tracking the chain-of-custody of evidence once it comes into the laboratory's possession, organizing storage of the evidence so it can be retrieved when needed, and the release or destruction of evidence as necessary.



In 2014, the CSIs worked 922 investigations involving 1,243 crime scenes. They were called out 378 times with 2,851 hours of forensic overtime and attended 164 autopsies. They testified 47 times with 344 court hours.



Evidence Clerks handle thousands of items of evidence throughout the year either from accepting evidence from contributors at the laboratories or from state police officers for storing and analysis. The Evidence Clerks were responsible for the storage of over 249,000 individual items of evidence in 2014.

The Unit is active in the forensic community by participating in the Indiana Division of the International Association For Identification (IN IAI) and Illinois Association of Property and Evidence Managers (IAPEM).

As noted in the chart to the left, a wide variety of crime scenes were worked by the Crime Scene Investigators. Burglaries accounted for 24% of the cases and homicides, suicides, and death investigations combined for an additional 36%.

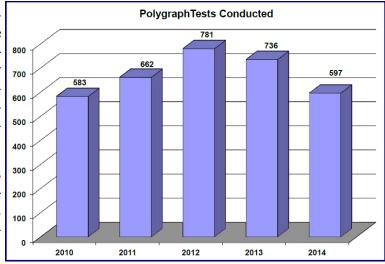
In 2014, five new Ford F-150 4x4 pickup trucks were obtained (photo right) for the CSIs. The trucks were equipped with an A.R.E. brand cap with wide, dual rear doors, side doors that open up to shelving and a 1500 Watt power inverter connected to 3 receptacles (one inside the cap, one outside the cap, and one inside the cab of the truck).



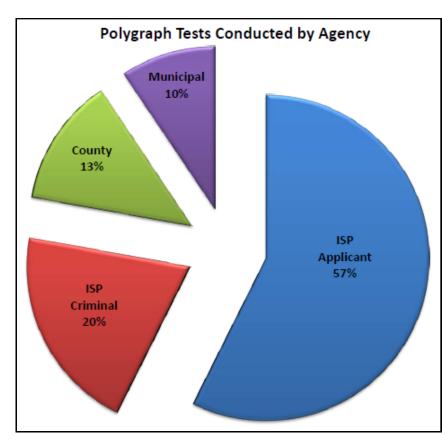
## **Polygraph Unit**

The Polygraph Unit (5 staff) provides polygraph services to the Indiana State Police and other state, county, and local law enforcement agencies. Polygraph is used very extensively in child molestation investigations where a delay in reporting often results in no physical evidence being available.

The Unit conducted 597 polygraph tests during 2014. The Unit developed 41 additional leads, cleared 67 cases, obtained 32 confessions and had 30 significant admissions.



The proportions of the tests conducted for the State Police, county and municipal agencies and prosecutors in 2014 are shown in the chart below. The Polygraph Unit worked behind the scenes in many investigations and was able to help conclude several unique as well as high profile cases.



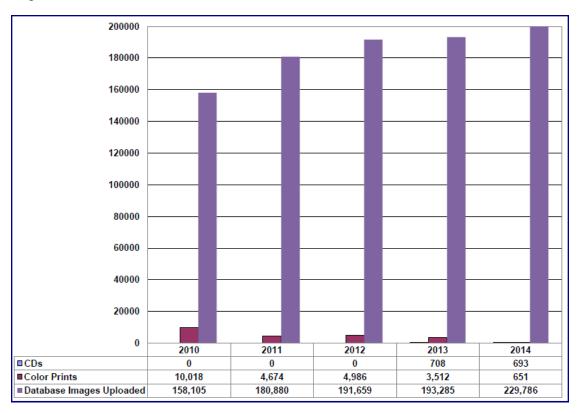
The Polygraph Unit is active in the forensic community by participating in the Indiana Polygraph Association (IPA), American Polygraph Association (APA) and American Association of Police Polygraphists (AAPP).

In 2014, after a lengthy two year process, the Unit received accreditation from Polygraph Law Enforcement Accreditation (PLEA). The PLEA inspection program is a voluntary oversight process designed to ensure participating law enforcement agencies have implemented polygraph standards representing the "best practices". Accreditation through PLEA demonstrates a standard of service that is ethical, professional, and provides reliable results for the jurisdictions served by an accredited Polygraph Unit.

## **Photography Unit**

The Photography Unit (1 staff) provides photography services for all ISP Department personnel and maintains an electronic photo storage system (Mideo) for all Department criminal investigations and crashes. Digital images are uploaded, cataloged and archived for future reference from 14 ISP Districts. The Mideo photo database allows images to be viewed at the district locations by Troopers and Investigators. 229,786 digital images were entered into the database in 2014. The Photography Unit printed 651 investigative color prints, electronically archived 67,433 images and provided 693 CDs for investigators, and also to insurance companies for a fee.

The Photo Unit completed the transition into becoming a totally digital Unit where film processing is now a thing of the past. As the photo servers were becoming full, the Photo Unit was responsible for archiving the district photography files in an effort to free up space for additional uploads. Archiving became a challenging project for both the Photo Unit and IT due to the massive amount of images that were being uploaded into the Mideo system. The Photo Unit worked several special projects this year, including photographing the 73<sup>rd</sup> State Police Academy Graduation Ceremony in the Rotunda of the State Capitol.



## **Quality Assurance & IT Support**

The Field Quality Assurance Unit (3 staff) administers comprehensive training in crime scene processing to local law enforcement agencies as well as Indiana State Police Crime Scene Investigators. The Unit assists the Indiana Law Enforcement Academy (ILEA) in certification of crime scene investigators for agencies throughout the state. The Unit Supervisor sits on the ILEA CSI Certification Board. The Unit also provides specialized training to other agencies upon request. Unit members are often called upon to give instruction at the ILEA to both the Indiana State Police Recruit School and the Basic Course.

The ISP Evidence System Quality Assurance Program annually audits each of the fourteen ISP district evidence storage facilities. Each district evidence storage facility has a Complete Inventory/Audit every two years. This Complete Inventory/Audit is comprehensive in that it accounts for every item stored at the facility. The Unit is occasionally called upon to audit a local law enforcement agency's evidence system. These audits are completed when there is a criminal case involving internal issues with the physical evidence stored at the location.

Additionally, the Unit semi-annually assesses the work of each of the twenty-three Indiana State Police Crime Scene Investigators. Each of the ISP CSIs are given a proficiency test annually to ensure their competency and that their equipment is functioning properly.

The Laboratory Quality Assurance Unit (2 staff) ensures compliance to laboratory and accreditation quality assurance standards. The Unit maintains updated and secure quality assurance documentation, oversees the implementation and continued corrective action compliance, ensures laboratory adherence to proficiency testing and witness critique requirements, and develops and conducts quality assurance related training for laboratory staff.

The four regional laboratories are accredited by the American Society of Crime Laboratory Directors/ Laboratory Accreditation Board (ASCLD/LAB), the longest established crime laboratory accreditation program in the country. ASCLD/LAB accreditation is a voluntary program in which a crime laboratory that participates must demonstrate that its management, personnel, operational and technical procedures, equipment, and physical facilities meet established quality standards. This Unit participates in the Association of Forensic Quality Assurance Managers (AFQAM) including holding the office of President for that organization, Organization of Scientific Area Committees - Quality Infrastructure Committee (OSAC -QIC) and the American Society for Testing and Materials-International (ASTM-I).

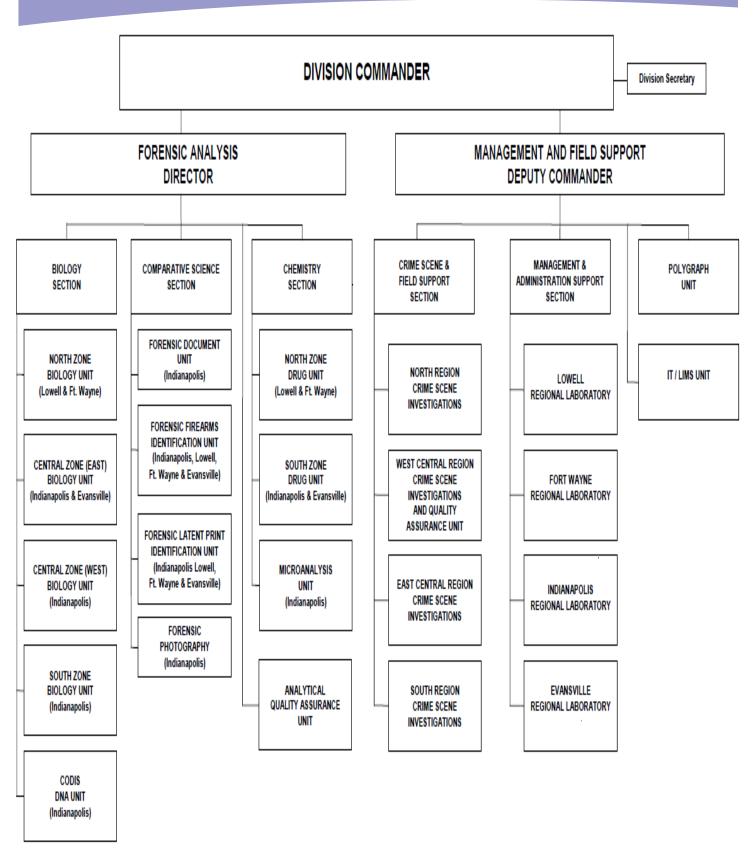
The Laboratory IT/LIMS Unit (2 staff) has the primary duty of maintaining and administrating the Laboratory Information Management System (LIMS). The LIMS tracks all evidence currently held by the Indiana State Police, all analytical results, records and reports. This system is integrated with a web based reporting system called iResults, which provides Certificates of Analysis to contributors.

The Unit supports Laboratory Division personnel in all 4 regional laboratories and 11 district locations. The Unit also maintains and supports a digital archive (Mideo) for all ISP photos taken of accidents and crime scenes, as well as a digital workflow system utilized by the Latent Print and Document Units.

This year the Unit assisted with creating a data sharing interface between the Laboratory's DNA database (CODIS) and the State's Judicial Technology and Automation Committee (JTAC) system. The intention of this data share was to decrease multiple sample collections during inmate processing, greatly reducing unnecessary work.

The Unit is called upon to provide assistance troubleshooting and maintaining other systems used by the Laboratory Division, including CODIS, AFIS, IBIS, analytical instrumentation, door access/security, phone system, and camera surveillance.

# Organizational Chart



## **Contact Information**

Indianapolis Regional Laboratory

550 West 16th Street, Suite "C"

Indianapolis, IN 46202

Laboratory Manager: Mr. Todd Reynolds

treynolds@isp.in.gov

317-921-5300

866-855-2840

Fort Wayne Regional Laboratory

5811 Ellison Road

Fort Wayne, IN 46804

Laboratory Manager: Mr. John Vanderkolk

jvanderkolk@isp.in.gov

260-436-7522

800-552-0976

Lowell Regional Laboratory

1550 East 181st Avenue

Lowell, IN 46356

Evansville Regional Laboratory

19411 Highway 41 North

Evansville, IN 47725

Laboratory Manager: Mr. Paul Fotia

pfotia@isp.in.gov

219-696-1835

877-874-0009

Laboratory Manager: Mr. Joe Vetter

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800-852-3970

Visit the Lab's website.

http://www.in.gov/isp/labs/